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*We want you to get the maximum performance from your products. So if you run into technical difficulties, we are here to help. For the most frequently asked questions, you can easily find answers in your product documentation. These answers are normally a lot more detailed than the ones we can give over the phone.*

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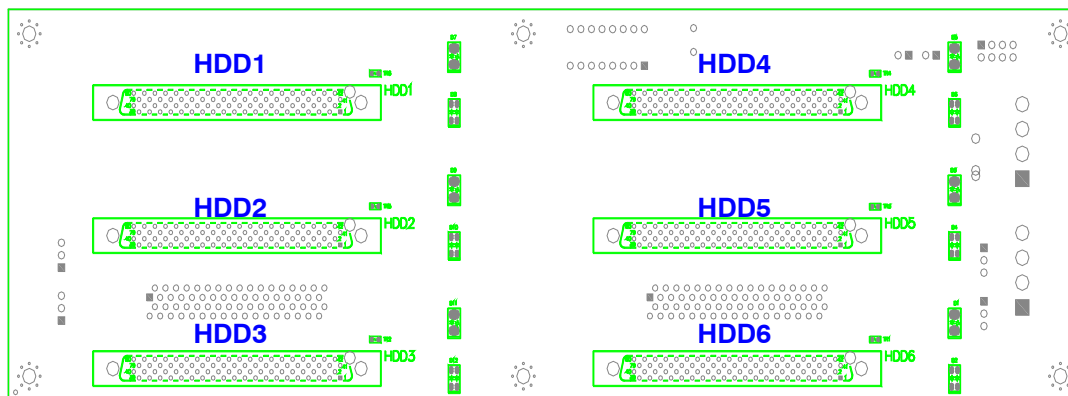
## **Hardware Specification**

<b>Host Interface</b>	<b>Ultra 320 ( HD68 )</b>
<b>HDD Interface</b>	<b>SCSI SCA2</b>
<b>Hot-Swap</b>	<b>Yes, allows user to on line replace Hard Disk Drive ( in RAID configurations )</b>
<b>Display</b>	<b>LED indicates Hard Disk Drive status Power LED – Blue ( When HDD is present ) Access LED –Amber blinking (When HDD is busy ) HDD Fail LED – Red ( The HDD fail LED drive by GEM318, No function if GEM318 is not install )</b>
<b>Cooling</b>	<b>Four Fan connector</b>
<b>Environment Monitor</b>	<b>Fan speed detect and Temperature detect</b>
<b>Alarm System</b>	<b>Buzzer beeping in case of any event occurs ex. Fan speed too low or/and temperature too high ( 55℃ or 65℃ selectable ), mute the beeping when pushed the mute SW</b>
<b>Connectors</b>	<b>HD68 x 2 ( to host and Terminator/Daisy chain ), SCA2 x 6( for HDD ), Standard 4P Power connector x 2 for +5V, +12V from power supply</b>
<b>Dimension</b>	<b>257(l) x 80(w) x 2.4(h) mm</b>
<b>Material</b>	<b>FR4 6 layer</b>

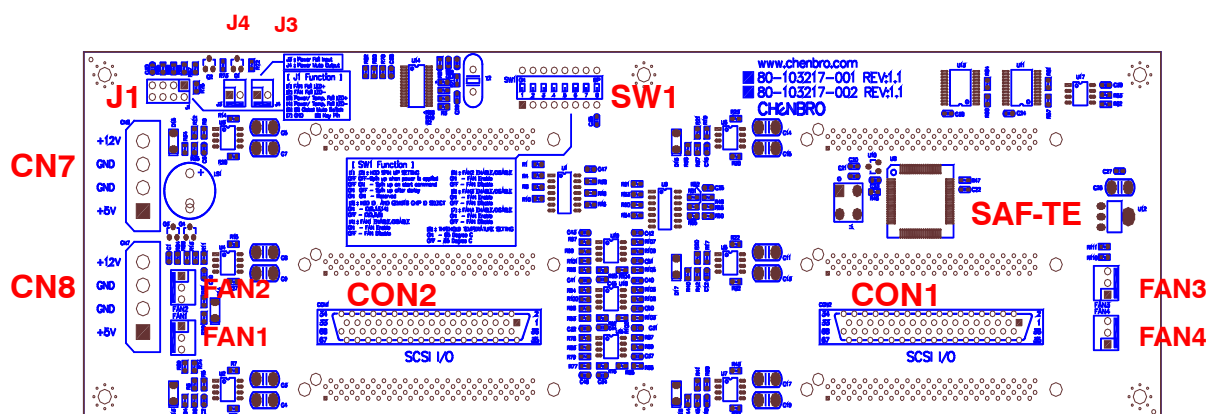
## **Backplane Layout**

### **Backplane Connectors**

*Front view (HDD slot IN)*



*Rear View (Host Connector IN)*



- (1) **[HDD1/HDD2/HDD3/HDD4/HDD5/HDD6]** : Connect 80-pin SCA Ultra 320 SCSI HDD
- (2) **[J1]** : Fan Fail LED output connector (to LED board)
- (3) **[CON1/CON2]** : Connect HDCl 68-pin SCSI Host (SCSI-IN/OUT)
- (4) **[FAN1 / FAN2 / FAN3 / FAN4]** : Fan connectors
- (5) **[SW1]** : Functionality / Mode Setting
- (6) **[CN7 / CN8]** : Power connectors
- (7) **[J3]** : Power Failure Input
- (8) **[J4]** : Power Failure Alarm Mute Output

## Pin Assignment

### [FAN1 / FAN2 / FAN3 / FAN4]

Pin	Def.
1	GND
2	+12V
3	Sensor



FAN Connector

### [CN7 / CN8]

Pin	Def.
1	+12V
2	GND
3	GND
4	+5V



Power Connector

### [SW1 (1,2)]

HDD Spin Up Mode	DIP-1	DIP-2
Auto	OFF	OFF
Command	OFF	ON
Delay	ON	OFF
(Reserved)	ON	ON



Function Switch

### [SW1 (3)]

DIP-3	HDD1~HDD6 ID	SAF-TE ID
OFF	0-5	6
ON	8-13	14

Note:

- (1) Do not use any additional SCSI device to occupy SAF-TE ID (ID#6 or ID#14) on the same channel.
- (2) The SAF-TE Backplane (GEM318) working base on 8-bit only, which may cause the HDD performance drop

### [SW1 (4,5,6,7)]

	DIP4 (FAN1) Monitoring	DIP5 (FAN2) Monitoring	DIP6 (FAN3) Monitoring	DIP7 (FAN4) Monitoring
ON	Enable	Enable	Enable	Enable
OFF	Disable	Disable	Disable	Disable

**[SW1 (8)]**

DIP	Function	ON	OFF
8	Monitoring Temperature Setting	65 DegC*	55 DegC

**[J1]**

Pin	Def	Output
1	LED(+)	FAN Fail LED
2	LED(-)	
3	LED(+)	Power/Temp Fail LED
4	LED(-)	
5	(+)	External Global Fail Mute (Reserved)
6	(-)	
7	GND	N/A
8	KEY	



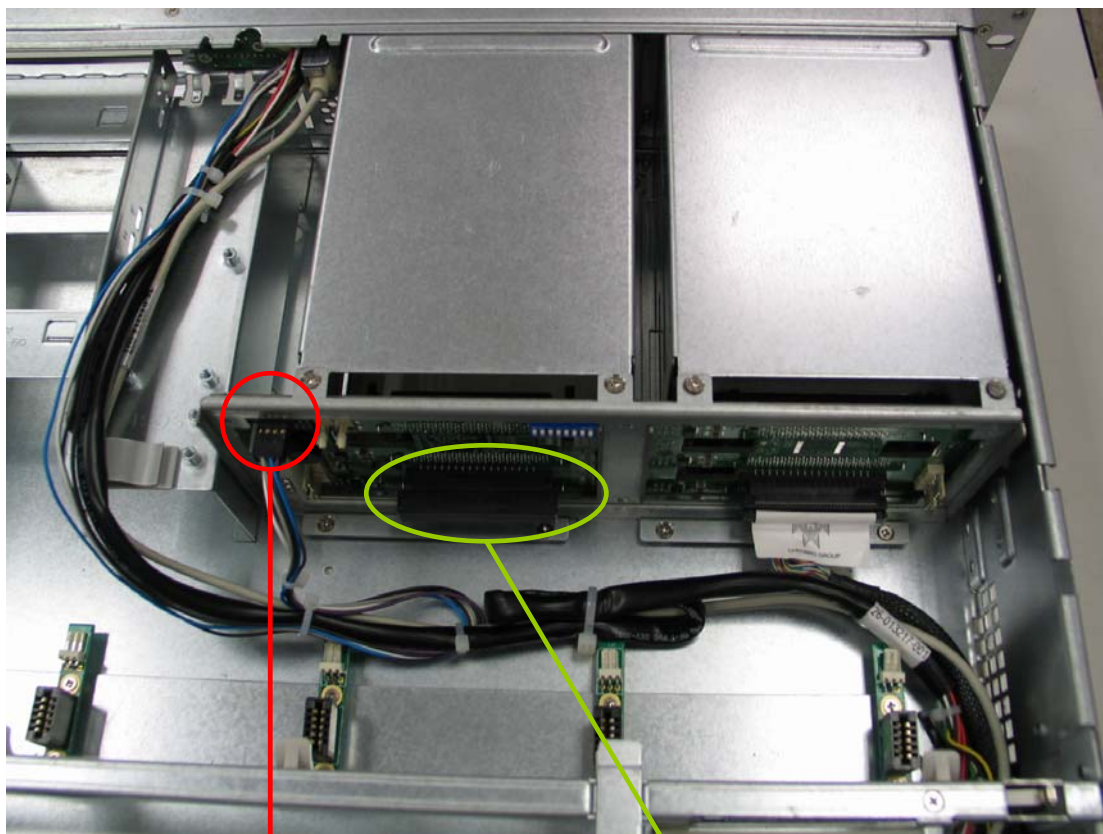
**Failure LED  
Output**

## **Backplane Assembly**

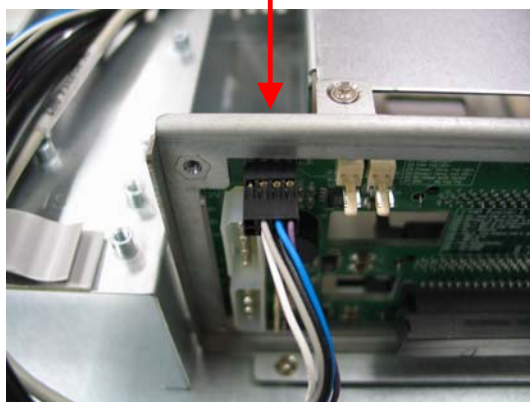
*The Chenbro 6-Port Ultra 320 SCSI Backplane can be only assembly on Chenbro Server Chassis RM21706, please refer to the Chassis Quick Installation Guide for the necessary information.*

## **Backplane Wiring**

1. Please use Ultra 320 SCSI cable connect from HOST to Backplane.
2. For the Fan connectors, please connect the middle Fan (3P3C) to the Backplane.
3. For the Fail LED output, please connect to the front panel LED board cable.



**Figure-1: Real Wiring in RM21706**



**Figure-2: Fail LED output (to LED board)**



**Figure-3: Ultra 320 SCSI Terminator**

### **Relative Part Number List**

<b>Part No.</b>	<b>Description</b>	<b>Unit</b>	<b>Remark</b>
80-103217-001	Ultra 320 SCSI Backplane (No SAF-TE)	Pcs	
56-103217-001	Bracket for RM21706 Backplane	Pcs	
26-073214-003	Ultra 320 SCSI Cable, 500mm (for BP to Host)	Pcs	
31-040000-006	Ultra 320 SCSI Terminator	Pcs	
80-103217-002	Ultra 320 SCSI Backplane (w/SAF-TE)	Pcs	
84-321710-002	Bulk Pack Ultra 320 SCSI Backplane (No SAF-TE)	Pack	x30 pcs

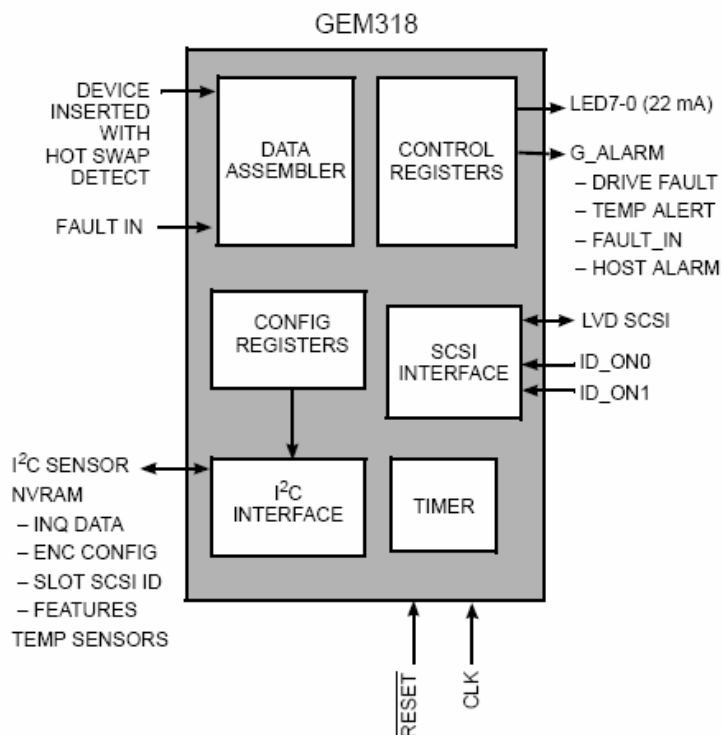
## **Appendix: GEM318 (SAF-TE) Chipset Specification**

### **Product Description**

*The GEM318 is a low-cost, self-contained storage backplane controller. It is a true single-chip solution – no additional components are required. Its small footprint and low implementation cost make it ideal for entry-level storage subsystem and server applications. It is implemented as a standard LVD SCSI target device and supports the SAF-TE specification. The GEM318 reports enclosure configuration and status, detects and reports when a drive has been swapped, and controls visual indicators and alarms.*

*The GEM318 also provides an I2C interface that operates in master and slave modes. As an I2C master, the GEM318 reads I2C based devices such as the National LM75 temperature sensor and the Phillips PCF8575. As an I2C slave, the GEM318 can be accessed by the host, allowing baseboard management controllers or service processors to read the enclosure status data from the GEM318.*

*The GEM318 block diagram is illustrated in figure 1.*



*Figure 1. GEM318 Block Diagram*



## **Software Functional Description**

### **SCSI Command Set**

*The following SCSI commands are supported:*

- \_ Inquiry*
- \_ Read Buffer*
- \_ Write Buffer*
- \_ Test Unit Ready*
- \_ Request Sense*
- \_ Send Diagnostic*

### **SAF-TE Command Set**

*The following SAF-TE commands are supported:*

- \_ Read Enclosure Configuration*
- \_ Read Enclosure Status*
- \_ Read Device Slot Status*
- \_ Write Device Slot Status*
- \_ Perform Slot Operation*
- \_ Send Global Flags*
- \_ Read Global Flags*

**Note:** For more details please see Qlogic "GEM318 Guardian Enclosure Management Controller" Data Sheet